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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,630	08/12/2005	Bruno Flaconnèche	612.44505X00	5668
20457 7590 02/08/2008 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				
			EXAMINER JACOBSON, MICHELE LYNN	
			ART UNIT 1794	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/517,630	Applicant(s) FLACONNECHE ET AL.	
	Examiner MICHELE JACOBSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/13/04</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 4, 6, 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 3 and 10 recite the broad recitation of "polyolefin" and "polymer alloys", and the claims also recite "(PE,

PP)" and "(PE-PA)" which are respectively the narrower statements of the range/limitation.

4. Regarding claims 4, 6 and 11, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
5. For the purpose of examination of these claims the broader of the limitations recited will be interpreted by the examiner as limiting.

***Claim Rejections - 35 USC § 112/101***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 8, 9 and 17-20 provide for the use of the multilayer structure of claim 1, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 8, 9 and 17-20 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an

improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 5, 10, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Sikdar et al. U.S. Patent No. 6,117,328 (hereafter referred to as Sikdar)

11. Sikdar teaches and adsorbent filled membrane for pervaporation comprised of polymers such as polyethylene, polypropylene or polyamide with a hydrocarbon adsorbent such as activated carbon dispersed therein. (Col. 6, lines 58-65, Col. 7, lines 11-17) Zeolite based adsorbents are also recited to be dispersed in the polymer composition of the invention in addition to activated carbon. (Col. 7, line 16)

12. Sikdar clearly anticipates the composition and structure of polyolefin or polyamide with zeolite or activated charcoal dispersed therein as claimed in claims 1-3, 5, 10, 13 and 14. The pervaporation membrane described in Sikdar is a structure and a single layer of the composition recited in claims 1-3 and therefore meets the limitations set forth in claims 5, 13 and 14. The limitation of a "structure containing hydrocarbons"

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is met by Sikdar since a pervaporation membrane is a structure and it is designed to adsorb (i.e. contain) hydrocarbons, the invention recited by Sikdar anticipates the limitations of a single layer structure containing hydrocarbons set forth in claims 5, 13 and 14.

13. Claims 1, 4, 5-9, 12 and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ellis European Patent Number EP 1108598A2 (hereafter referred to as Ellis).

14. Ellis teaches a permeation barrier fuel tank with an inner layer, middle nanocomposite polymer layer and an outer layer. (Para. 7) The nanocomposite middle layer is recited to be comprised of polyamide or ethylene vinyl alcohol copolymer in which platy filler material has been uniformly dispersed. The platy filler material is recited to have particles with a high aspect ration of about 200 to about 1000 where the thickness is on the order of one nanometer. (Para. 14) The presence of the platy filler material presents an efficient obstacle to the transport i.e. diffusion of penetrant molecules such as those normally found in fuels. (Para. 16) The barrier layer of the invention can be molded according to existing thermoforming methods such as extrusion, lamination etc. that are currently used for existing fuel tanks.

15. Ellis clearly anticipates the composition and fuel tank comprised of a polyamide layer with nanometric material (Ellis: platy filler material) dispersed therein produced by extrusion recited in claims 1, 4, 6-9, 12 and 15-20. It is well known in the adsorbent art

that platy material is composed of mineral materials and therefore Ellis anticipates the limitations set forth in claim 1. Since Ellis specifically recites that the platy material used is nano-scale in size, the nanometric type permeability reducing filler recited in claim 4 is anticipated.

16. Regarding claims 5 and 15 the examiner interprets the language "characterized in that its wall is a single layer of the composition" to mean that the structure claimed is *comprised* of a single layer of the composition claimed. As such, even though Ellis teaches a multilayer structure, the composition of the invention claimed in claims 5 and 15 is anticipated by Ellis as are the structures comprised of a layer of the permeation barrier layer described by Ellis.

17. Regarding claims 6, 7 and 16: Claim 6 recites the limitation "wherein at least one face of said wall is treated ... to reduce the permeability". Since the limitation of fluorination is recited to be exemplary, it is not limiting. Adding platy nanomaterial to the polyamide of the barrier layer of Ellis is interpreted as treating the barrier layer to reduce permeability. Ellis therefore anticipates the limitations set forth in claim 6. Ellis clearly recites extrusion as a fabrication method as set forth in claims 7 and 16.

18. Regarding claims 8, 9 and 17-20: These claims recite intended uses and are therefore not limiting, however, Ellis clearly anticipates the application of a composite barrier material for fuel related applications.

***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis European Patent Number EP 1108598A2 (hereafter referred to as Ellis) and Sikdar et al. U.S. Patent No. 6,117,328.

21. Ellis teaches as has been recited above but is silent regarding the addition of zeolite, activated charcoal, carbon nanotubes or mixtures thereof to the permeation barrier layer recited.

22. Sikdar teaches what has been recited above and specifically the benefits of zeolite and activated carbon for hydrocarbon adsorption.

23. The motivation to combine Sikdar with Ellis would have been to further enhance the hydrocarbon adsorbing capability of the permeability reducing membrane of Ellis by the incorporation of additional adsorbent material.

24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined Sikdar with Ellis in order to produce the invention as claimed in claim 11.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McGroarty et al. WO 90/14222 which teaches the advantages of using clay materials in a barrier for adsorption of hydrocarbons. Long et al. J. Am. Chem. Soc. 2001, 123, 2058 which teaches the superior adsorption properties of carbon nanotubes compared to graphite. Park et al. Langmuir, 2000, 16, 8050-8056 which teaches the adsorption properties of carbon nanotubes for organic solvents. Coughlin et al. U.S. Patent No. 5,508,330 which teaches the enhancement of the barrier properties of molded articles comprised of polymers such as polyolefin, elastomers and polyamides by the addition of fluoropolymer. Muirhead U.S. Patent No. 6,661,339 which teaches the addition of talc or metal particles to polyolefin for a barrier layer of a fuel tank.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele L. Jacobson  
Examiner  
Art Unit 1794

/M. J./

  
**CAROL CHANEY**  
**SUPERVISORY PATENT EXAMINER**